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Roundup

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STS-106 *Crew, ground teams prepare for 'Dream Mission'*

NASA JSC Photo STS106-(s)-002

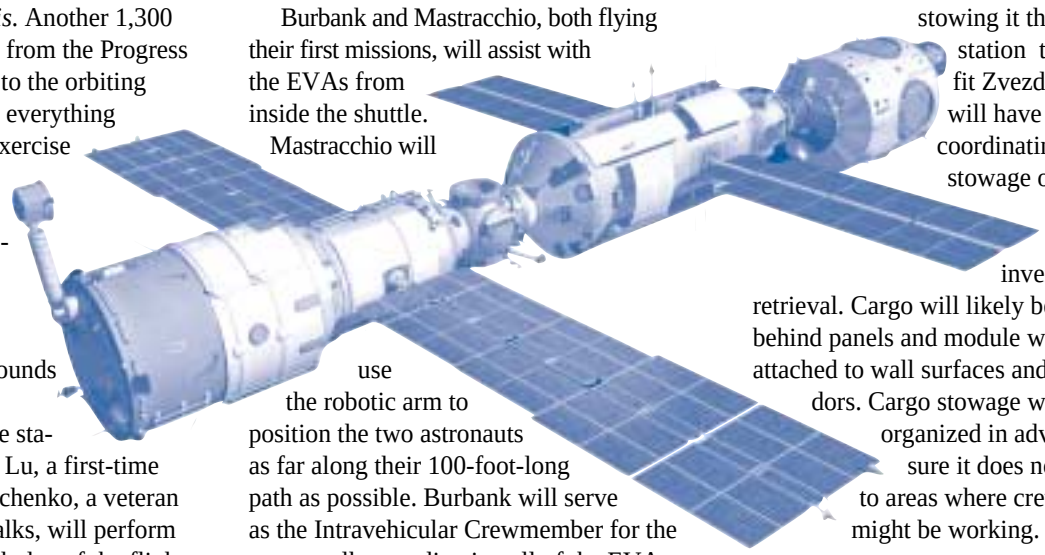
The crew of STS-106, from left, Boris Morukov, Scott Altman, Rick Mastracchio, Edward Lu, Dan Burbank, Terrence Wilcutt, and Yuri Malenchenko.

With the successful launch and docking of the Russian Zvezda Service Module and Progress resupply craft achieved, the spotlight is back on NASA for the next step in development of the International Space Station. STS-106, which will be the 99th shuttle mission, is slated to bring the next visitors to the newly expanded station. The 106 crew, a team of five U.S. astronauts and two Russian cosmonauts, is now in final stages of training for its September 8 launch aboard *Atlantis.* Crewmembers say they've got one of the best missions ever.

"Having the opportunity to fly on a space shuttle mission is an awesome experience," said Commander Terry Wilcutt, "but what makes STS-106 special is the wide and challenging range of tasks we will perform. During our mission, we will fly to and dock with the space station, perform a space walk, open up a brand new module, install and check out crucial systems on board the station, unload a cargo resupply vessel, operate the shuttle robotic arm, and finally undock and fly around the station."

Wilcutt will be joined by Pilot Scott Altman (Cmdr., USN), Mission Specialists Dan Burbank (Lt. Cmdr., USCG), Ed Lu (Ph.D.), Richard Mastracchio, and Cosmonauts Yuri Malenchenko (Col., Russian Air Force) and Boris Morukov (M.D.) for the planned 11-day mission.

Assigned just over six months ago, the mission is chock full of high-profile activities for the crew, the largest mission objective being the unloading and stowage of equipment and supplies from *Atlantis* and the Progress. According to STS-106 Launch Package Manager Sharon Castle, more than 7,200 pounds of payloads will be ferried to orbit on *Atlantis*. Another 1,300 pounds will be unpacked from the Progress module already attached to the orbiting station. Payloads include everything from food and water to exercise equipment, computers, clothing and medical gear – all for the first permanent residents of ISS.



EVA milestones

Approximately 100 pounds of equipment will be installed externally on the station. To accomplish this, Lu, a first-time space walker, and Malenchenko, a veteran of two previous space walks, will perform a space walk on the fourth day of the flight, only the second EVA involving both a U.S. astronaut and a cosmonaut outside of the shuttle.

The EVA also will be the first in which a U.S. astronaut moves about the station using the Russian tether protocol. Traditionally during EVAs, U.S. astronauts use a single tether to leash the crewmember to the spacecraft. However, because of the distance crewmembers must travel for their various tasks on the station's exterior, and obstacles along the way, use of a single long line in this case is not feasible. For this mission, and likely many more afterward, the space walkers will maneuver by continuously attaching, disconnecting and reattaching two shorter tethers – much as a rock-climber – to traverse the length of the station.

Burbank and Mastracchio, both flying their first missions, will assist with the EVAs from inside the shuttle. Mastracchio will use the robotic arm to position the two astronauts as far along their 100-foot-long path as possible. Burbank will serve as the Intravehicular Crewmember for the space walk, coordinating all of the EVA activities from within *Atlantis*' cabin.

Once positioned, Lu and Malenchenko will install several devices to the station, including a magnetometer – an instrument that indicates the orientation of the spacecraft – to a boom on the station. They also will connect Zvezda's various data cables and lines to the Zarya module.

Orbital housewarming

One of the highlights of the mission will be when the crew opens the hatch to the station's living room on flight-day five. Zvezda, launched less than two months ago, will provide the early living quarters for station residents but at this point is more like a vacant apartment. The crew will spend five days unloading cargo and stowing it throughout the station to properly outfit Zvezda. Burbank will have the task of coordinating all the stowage of gear in the ISS and recording the inventory for future retrieval. Cargo will likely be stowed behind panels and module walls as well as attached to wall surfaces and station corridors. Cargo stowage will be well organized in advance to make sure it does not block access to areas where crewmembers might be working.

Cleared for departure

Once *Atlantis*' crew has prepared the ISS for its first residents, the shuttle will undock from the station. At that time, Altman will take the controls and execute a flyaround of the station to enable the shuttle crew to conduct a photographic survey of the station's exterior.

After the flyaround, the shuttle will maneuver away from the station and prepare for a pre-dawn landing September 19 at the landing facility at Kennedy Space Center to complete the third shuttle mission of the year. ■

More information on the mission, including sighting opportunities, can be found at http://spaceflight.nasa.gov/.

Legendary Apollo-era engineer dies.

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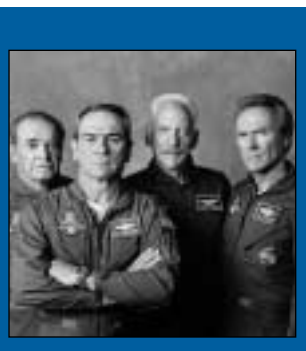

JSC hosts *Space Cowboys*' Press Weekend.

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First integrated payload trainer arrives at JSC.

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